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PATENT

DAE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED

Applicant: Bruce et al.

Examiner: Turner, S.

JUL 09 2004

Serial No.: 09/386,112

Group Art Unit: 2877

Filed: August 30, 1999

Docket No.: AMDA.261PA

OFFICE OF PETITIONS

Title: Dual-Differential Interferometry For Silicon Device Damage Detection

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence and the papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on July 1, 2004.

By:

Erin M. Nichols

PETITION UNDER 37 C.F.R. § 1.137(b)
TO REVIVE AN UNINTENTIONALLY ABANDONED APPLICATION

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The present petition seeks revival of the instant patent application. Abandonment of this application was unintentional and improper.

The Notice of Abandonment issued on June 18, 2004, indicated that the instant application was abandoned in view of the Board of Patent Appeals and Interference decision of March 16, 2004, because the instant application contains no allowed claims. This is erroneous. The decision indicated that the Board reversed each of the Section 112 rejections thereby clearing claims 3-6, 8 and 16 of any rejections. After a decision on appeal is issued, 37 C.F.R. § 1.197(a) indicates that the application will be returned to the examiner for further action by the examiner as required to carry into effect the decision. As the decision held that the Section 112 rejections were "reversed" thereby clearing claims 3-6, 8 and 16 of any rejections, the Examiner should have at least issued an indication of allowability for claims 3-6, 8 and 16. Applicant did not receive any action from the examiner regarding the allowability of claims 3-6, 8 and 16. As

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claims 3-6, 8 and 16 are not rejected, Applicant submits that they are in condition for allowance. Thus, the abandonment of the instant application was improper under 37 C.F.R. § 1.197(c)(1).

As evidenced below (and through the attached true copies of each mailed item) with details in chronological order, the abandonment should never have occurred since the Board decision reversed the Section 112 rejections, clearing claims 3-6, 8 and 16 of all rejections.

The details are set forth below:

Exhibit 1 – Decision on Appeal by the Board of Patent Appeals and Interferences, specifically pages 3-5 discuss the reversal of the Section 112 rejections.

Exhibit 2 – Notice of Abandonment issued on June 18, 2004, specifically paragraph 6 asserts that no claims are allowed.

Applicant has not received any other action regarding the instant application since the Decision on Appeal issued on March 16, 2004. Accordingly, Applicant submits that the abandonment was improper and unintentional.

Please find copies of the above Exhibits attached to this Petition:

Applicant respectfully requests revival of patent application Serial No. 09/386,112.

Applicant does not believe a petition fee should be charged in view of the circumstances, but in the event it is deemed required, please charge Deposit Account No. 01-0365 (TT2335) for the petition fee under 37 C.F.R. § 1.17(m). Please also charge/credit deposit account number 01-0365 (TT2335) if it is determined that any additional fees are needed.

If a telephone conference would be helpful in resolving any issues relating to this matter, please call the undersigned at 651/686-6633.

Respectfully submitted,

CRAWFORD MAUNU PLLC
1270 Northland Drive, Suite 390
St. Paul, MN 55120
(651) 686-6633

By: _____

Robert J. Crawford
Reg. No. 32,122

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Exhibit 1



The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 28

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MAR 16 2004

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL R. BRUCE and RAMA R. GORUGANTHU

Appeal No. 2004-0690
Application No. 09/386,112

ON BRIEF

Before KIMLIN, KRATZ and DELMENDO, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-16.

Claim 1 is illustrative:

1. For a semiconductor device that includes a semiconductor die having a circuit side and bulk silicon in an [sic] back side opposite the circuit side, a method for detecting a defect at a surface in the die, comprising:

locating a first beam splitter for optical manipulation relative to the back side of the semiconductor die;

directing light of a known wavelength at the beam splitter, wherein the first beam splitter is adapted to direct a first beam

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of light into the back side of the semiconductor die which reflects a second beam of light back;

redirecting the second beam to a second beam splitter, the second beam splitter generating third and fourth beams of light; and

analyzing the third and fourth beams of light, including comparing a relational factor that is a function of the two beams of light with a reference and detecting therefrom a surface defect in the die.

The examiner relies upon the following reference as evidence of obviousness:

| | | |
|--------------------|-----------|--------------|
| Marx et al. (Marx) | 5,880,838 | Mar. 9, 1999 |
|--------------------|-----------|--------------|

Appellants' claimed invention is directed to a method and system for detecting a defect in a semiconductor die having a circuit side and a bulk silicon back side. The invention includes a first beam splitter for directing a beam of light into the back side of the die, which beam is then reflected to a second beam splitter which generates a pair of beams that are analyzed and compared to light reflected from a die not having a surface defect. A typical defect in the die includes a defect in a material type or composition.

Appealed claims 1-16 stand rejected under 35 U.S.C. § 112, first paragraph, enablement requirement. Claims 1-16 also stand rejected under 35 U.S.C. § 112, second paragraph. In addition,

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claims 1, 2, 7 and 9-15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Marx.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we find that the examiner's rejections under 35 U.S.C. § 112, first and second paragraphs, are not well founded. We do agree with the examiner, however, that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, while we will not sustain the examiner's § 112 rejections, we will sustain the examiner's § 103 rejection for essentially those reasons expressed by the examiner.

We consider first the examiner's rejection under § 112, first paragraph. In essence, it is the examiner's position that the specification does not describe how the non-reflected reference beam is combined with the reflected beam after being split by the first beam splitter. However, as correctly pointed out by appellants, the appealed claims do not require any such combination of the reflected and non-reflected beams. Appellants point to the specification which describes a comparative analysis made on the reflected beam that is split into the third and fourth beams by a second beam splitter. On the other hand, the

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examiner has not met the initial burden of establishing that one of ordinary skill in the art would be unable to practice the claimed invention without undue experimentation in light of the specification disclosure and state of the prior art. In re Strahilevitz, 668 F.2d 1229, 1232, 212 USPQ 561, 563 (CCPA 1982); In re Armbruster, 512 F.2d 676, 677, 185 USPQ 152, 153 (CCPA 1975). For instance, even if the claimed method necessarily included combining the reflected and non-reflected beams, the examiner has not demonstrated that one of ordinary skill in the art would not be enabled to do so.

We will also not sustain the examiner's rejection of the appealed claims under § 112, second paragraph, since the examiner has fallen prey to reading the claims in a vacuum rather than in light of the supporting specification and state of the art. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). The examiner reasons that "[b]ecause the back side of the semiconductor die is the only surface positively claimed 'which reflects a second light beam' no defects are imprinted onto the reflected second light beam" (sentence bridging pages 5 and 6 of Answer). However, it is clear from the present specification that the beam travels through the back side of the die before

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encountering the defective surface that reflects the beam. We also disagree with the examiner that claims 1, 10 and 11 are incomplete "as to how any profile of the circuit side of the die is formed for comparison as there is no interference claimed" (page 6 of Answer, second paragraph). The claims encompass the method disclosed in the specification which develops a profile of the circuit side by analyzing the reflected beam that is split into third and fourth beams.

We will sustain the examiner's rejection under 35 U.S.C. § 103 over Marx. Appellants do not dispute the examiner's factual determination that Marx discloses a method for measuring the dimensions of a semiconductor die utilizing the presently claimed light source, first beam splitter, second beam splitter and means for analyzing the third and fourth beams of light. It is appellants' contention that the examiner has not provided any evidence for using Marx "in connection with defect detection in a semiconductor die, as claimed in the present invention" (page 5 of principal brief, second paragraph). However, inasmuch as Marx essentially discloses appellants' instrumentation and system for determining "structural parameters," such as surface dimensions and type of material, for microelectronic devices, we fully concur with the examiner that one of ordinary skill in the art

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would have found it obvious to establish the standard for such a structural parameter for comparison with the parameters of manufactured devices. In our view, Marx clearly suggests such a use at column 4, lines 21 et seq., wherein a reference structure of known structural parameters, such as the material of the structure, is used to determine unknown structural parameters of other devices. Manifestly, using a system of the type claimed for determining unknown structural parameters would readily facilitate the determination of whether the tested device is defective.

As for the failure of Marx to disclose the claimed thinning of the back side of the die before testing, we agree with the examiner that appellants' specification evidences that such a step was well-known in the art of analyzing semiconductor dies, particularly "flip-chip" devices (see page 3 of specification, lines 15 et seq.).

As a final point with respect to the § 103 rejection, we note that appellants base no argument upon objective evidence of nonobviousness, such as unexpected results.

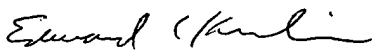
In conclusion, based on the foregoing, the examiner's rejections under 35 U.S.C. § 112, first and second paragraphs,

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are reversed, whereas the examiner's rejection under 35 U.S.C.
§ 103 is sustained. Accordingly, the examiner's decision
rejecting the appealed claims is affirmed-in-part.

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

AFFIRMED-IN-PART


EDWARD C. KIMLIN)
Administrative Patent Judge)


PETER F. KRATZ)
Administrative Patent Judge)

BOARD OF PATENT
APPEALS AND
INTERFERENCES


ROMULO H. DELMENDO)
Administrative Patent Judge)

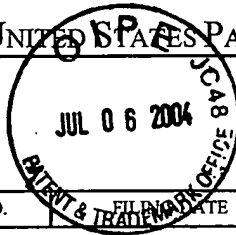
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Exhibit 2

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/386,112 | 08/30/1999 | MICHAEL R. BRUCE | AMDA.261PA | 1027 |

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06/18/2004

CRAWFORD PLLC
1270 NORTHLAND DRIVE
SUITE 390
ST PAUL, MN 55120

EXAMINER

TURNER, SAMUEL A

ART UNIT PAPER NUMBER


2877

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



Notice of Abandonment

| | | |
|------------------|--------------|---|
| Application No. | Applicant(s) | |
| 09/386,112 | BRUCE ET AL. | |
| Examiner | Art Unit | |
| Samuel A. Turner | 2877 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☐ Applicant's failure to timely file a proper reply to the Office letter mailed on _____.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
(A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☐ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☒ The decision by the Board of Patent Appeals and Interference rendered on 16 March 2004 and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

see MPEP 1214.06 I.(A)



Samuel A. Turner
Primary Examiner
Art Unit: 2877

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.